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Care Strategies for Patients
**RECOVERING
FROM STROKE**

JANA MANNEN, RDH, BSDH

**SCREENING TOOLS
FOR SLEEP DISORDERS**

DIANE P. KANDRAY, RDH, MED, AND
MARY L. YACOVONE, RRT, MED

**HOW TO ADDRESS
WHITE SPOT LESIONS
IN ORTHODONTIC PATIENTS**

AHMED GHONEIMA, DDS, PhD, AND
KATHERINE KULA, MS, DMD, MS

MIND OVER MATTER
WAYS TO
10 REDUCE PAIN
AND ANXIETY
DURING
INJECTIONS

ARTHUR C. DIMARCO, DMD, KATHY BASSETT,
RDH, MED; AND JACKIE FOSKETT, RDH, BA, CH

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Strategies for Addressing BRUXISM

Dentinal hypersensitivity often accompanies bruxism. Here's how to help patients manage this condition.

By Ronald E. Goldstein, DDS

CLINICAL SYMPTOMS OF BRUXISM

Bruxism may be mild and not require treatment, but if grinding is frequent and severe, jaw disorders, headaches, damaged teeth, and other problems may result. Patients may have nocturnal bruxism, leaving them unaware of the problem until complications develop. As such, educating patients on the symptoms of bruxism is important. These include: pain or soreness in the jaw or neck, hearing a popping sound when opening and closing the mouth, teeth appearing uncharacteristically short or worn down, loss of cusp tips, waking up with headaches, tooth sensitivity, and ringing of the ears.

The three main clinical symptoms that dental hygienists should look for during an assessment are worn facets, worn cusp tips, and incisal wear patterns that affect esthetics.³ In bruxing patients, the canines and incisors most often move against each other in a side-to-side action. This can abrade tooth enamel, removing the sharp biting surfaces and flattening the edges of the teeth. The anterior teeth become worn to exactly the same length and they look flat at the incisal edges. Worn cusp tips can occur in patients of all ages and are usually a response to stress. In some cases, the loss of tooth enamel is more evident than in severe tooth decay. Damage to the tooth enamel makes it easier for bacteria to penetrate exposed dentin, increasing the possibility of caries and tooth fractures. Clenching puts teeth under high pressure. As a result, the incisal edges of anterior teeth and the cusps of posterior teeth may start to show micro-fractures or cracks. Eventually, this could lead to fractures and, in some cases, the need for endodontic therapy. Table 1 (page 40) provides a list of common oral problems associated with bruxism.



Ronald E. Goldstein, DDS, is a clinical professor of oral rehabilitation at Georgia Health Sciences University College of Dental Medicine in Augusta, adjunct clinical professor of prosthodontics at Boston University Henry Goldman School of Dental Medicine, and adjunct professor of restorative dentistry at the University of Texas Health Science Center at San Antonio. He also maintains a private practice dedicated to wellness and cosmetic dentistry in Atlanta. Goldstein lectures around the world regarding cosmetic dentistry and has authored or co-authored 10 books, including *Esthetics In Dentistry* and

Change Your Smile, a book that educates consumers about cosmetic dentistry. He is also a *Dimensions* Editorial Advisory Board member.

Bruxism is the grinding or clenching of the teeth, and it can cause significant dental problems. Affecting

approximately 8% to 16% of adults, bruxism can occur while patients are awake or solely during sleep.^{1,2} A significant side effect of bruxism is dentinal hypersensitivity. Most bruxers will experience sensitivity on the occlusal surfaces of the posterior teeth and the lingual surfaces of the anterior teeth. Bruxism can also lead to abfractions and dentinal hypersensitivity throughout the dentition due to the small cracks that form, as well as the loss of enamel-exposing dentin.

Table 1. Problems Associated with Bruxism

Dentinal hypersensitivity

Sensitivity to cold, pressure, and other stimuli may be seen in severe cases. Worn tooth enamel exposes the dentin, which makes affected teeth susceptible to sensitivity.

Loose teeth

Bruxism keeps teeth under constant lateral motion. Although the motion may be small, in time it may lead to loss of supporting bone around the teeth, causing mobility.

Bony ridges

Instead of losing bone support, some people actually develop "extra" bone to support the teeth. These appear as bony ridges that can be seen and felt on the jawbones as a smooth raised area about the level of the roots.

Cheek or tongue irritation

People with bruxism often bite their tongue or inner cheek, especially close to the molar area.

Irritating sounds while sleeping

Teeth grinding may be loud enough for others to hear while sleeping.

Temporomandibular joint (TMJ) problems

Chronic bruxism is one of the leading causes of TMJ. Common symptoms caused by bruxism include: sore jaw muscles and facial pain around the jaw or ears area when chewing; frequent headaches or pain in the neck or shoulders; clicking, locking, or popping in the TMJ; and ringing in the ears.

Abfraction

Bruxism can also lead to abfraction or noncarious lesions caused by flexural forces resulting in loss of tooth structure. The forces generated by bruxing can cause teeth to flex over time, resulting in lesions along the gumline in the bicuspid region.

TREATMENT OF BRUXISM

The first line of defense in treating bruxism is to educate patients that the teeth should never touch except when eating. Nightguards are the most common treatment but other methods can also help. Biofeedback and behavior modification—such as tongue exercises and learning how to properly align the tongue, teeth, and lips—can reduce teeth grinding. A day appliance may be needed, which is usually made for the lower posterior teeth to avoid interfering with speech.

If considerable tooth structure has been lost, a limited or full restoration of the damaged teeth may be necessary, ranging from composite resin restorations to full crown protection.

Table 2. Common Ingredients Used in Desensitizing Dentifrices

- Potassium salts (nitrate, chloride, and citrate) interfere with the transmission of stimuli by depolarizing the nerve surrounding the odontoblasts.
- Strontium salts (chloride or acetate) can penetrate and occlude the tubules, thereby stopping flow of fluid.
- Sodium citrate and various fluoride compounds act as barriers to dentinal tubules, preventing fluid movement, thereby reducing sensitivity.

TREATING HYPERSENSITIVITY

Dentinal hypersensitivity is a chronic, often undiagnosed problem that affects many patients with bruxism. A comprehensive assessment is the first step to effective treatment. The majority of cases begin with gingival recession and tooth erosion.⁴ The two principal treatment options are to occlude the dentinal tubules, thus preventing fluid flow, or to desensitize the nerve, making it less responsive to stimulation.⁵

To date, no single treatment is effective for all patients who experience sensitivity. Many treatment modalities, however, with varying levels of supporting evidence, are available. Minimally invasive, inexpensive, and effective options should be tried first. Professional interventions range from applying fluoride varnish for remineralization to more aggressive, low-level laser treatments that occlude the tubules. Self-care recommendations include the use of desensitizing toothpastes and remineralizing agents. Filling custom trays with desensitizing toothpaste increases the medicament-tooth contact time, thus improving efficacy. (Table 2 includes a list of the most common ingredients in sensitivity dentifrices.)⁶

Other strategies can be used depending on the severity of the condition. A calcium-based remineralizing product designed to block tubules and provide a source of calcium and phosphate ions in saliva is available for chairside application (Pro-Argin™ technology). Calcium compounds, such as amorphous calcium phosphate (ACP), casein phosphopeptide-ACP (Recaldent™), calcium sodium phosphosilicate (Novamin®), and tri-calcium phosphate (TCP), occlude dentinal tubules and can be administered at home via custom tray, toothbrush, or finger application.⁷⁻¹¹

Fluoride varnish can help reduce sensitivity, as can iontophoresis, which delivers a low voltage charge of fluoride into the dentin. Methacrylic polymers, applied as a base or composite restoration, can also ease the pain of tooth sensitivity.

Other suggestions include modifications to the patient's self-care regimen, such as proper toothbrushing to control plaque biofilm buildup and reduce toothbrush abrasion, and caries-control strategies.

Professional as well as over-the-counter treatment options should be presented to the patient. Product recommendations should be based on scientific evidence supporting each active ingredient and the patient's individual needs and preferences. Follow-up to monitor treatment and pain reduction should also be included. Forming an alliance with patients to create an individualized approach to treating dentinal hypersensitivity will increase compliance.

SUMMARY

Dental hygienists must be able to recognize the signs of bruxism so that it can be addressed before permanent damage to the dentition is done. When bruxism is caught early and treated, dentinal hypersensitivity, in addition to other serious side effects, such as esthetic damage, may be prevented. Continuous and careful observation by dental hygienists is the patients' best protection for keeping their smiles intact. **D**

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